Chapter 3
Introduction to the Environmental Setting, Impacts, and Mitigation Measures

3.1 Introductions and Chapter Organization

This chapter defines the scope and extent of the environmental analysis, including a delineation of the overall study area, the framework for the impact analyses, an explanation of resource areas evaluated and not evaluated, and a list of environmental documents incorporated by reference.

3.2 EWA Study Area

The EIS/EIR study area includes those areas of California that might receive benefits from EWA actions or areas potentially affected by EWA because they serve as a site for EWA water asset acquisition, conveyance, or storage. The EWA study area is divided into three study units, based on the unit's relation to the Delta. Water conveyance through the Delta is a significant constraint to EWA operation, influencing both the acquisition of water assets and the effects analysis. The effects analysis of each alternative was conducted under a regional framework because of the similarity of effects within each of the three units (see Figure 3-1). The three study units (or regions) are defined as the land and tributaries upstream from the Delta, the Delta, and the Central Valley Project/State Water Project (CVP/SWP) Export Service Area. The CVP/SWP Export Service Area is defined as those lands that receive SWP and CVP water via the south Delta pumping plants, as well as reservoirs that are used for EWA asset management.

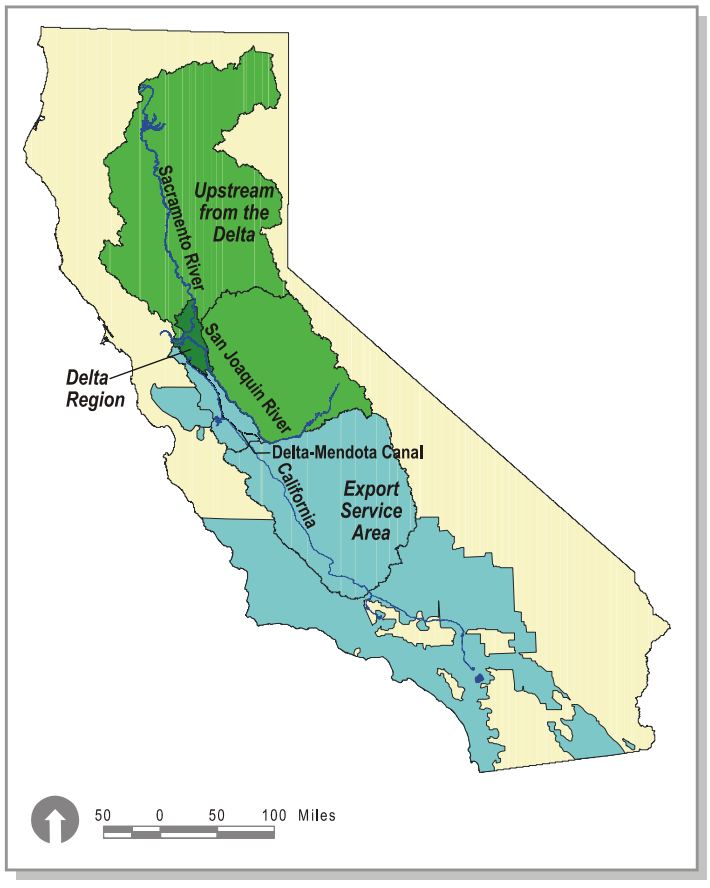

Figure 3-1
EWA Study Area

The overall EWA study area includes specific areas of analysis for each resource that may be directly or indirectly affected by potential EWA acquisitions (see individual

chapters 4 through 21 for descriptions of specific areas of analysis for each resource). In a general sense, these areas of analysis comprise (1) watersheds of rivers that may be the source of stored reservoir water or may participate in groundwater substitution or crop idling; (2) rivers used to convey EWA assets; (3) lands that may be used for crop idling; (4) groundwater basins that may be affected by groundwater substitution, crop idling, stored groundwater purchase, or groundwater storage; (5) reservoirs that may be used for source shifting; (6) SWP or CVP conveyance facilities; (7) SWP or CVP storage facilities; and (8) storage facilities owned by other entities. These water bodies, lands, and water supply facilities are delineated below.

- Upstream dams and reservoirs on the Sacramento, Feather, Yuba, American, and Merced Rivers where EWA assets may be acquired or stored, including:
  - Lake Shasta (Sacramento River);
  - Little Grass Valley, Sly Creek, and Oroville Reservoirs (Feather River);
  - New Bullards Bar Reservoir (Yuba River);
  - Hell Hole, French Meadows, and Folsom Reservoirs (American River);
  - Lake McClure (Merced River);
- Water bodies downstream from the above reservoirs, including:
  - Sacramento River;
  - South Fork Feather River, Middle Fork Feather River (downstream from the South Fork), and the lower Feather River;
  - Yuba River;
  - Middle Fork American River, North Fork American River (downstream from the Middle Fork), and the lower American River;
  - Merced and San Joaquin Rivers;
- Instream and riparian areas corresponding to the above reservoirs and streams;
- The Sacramento-San Joaquin Delta;
- Portions of the CVP and the SWP systems;
- San Luis Reservoir;
- Two terminal Department of Water Resources (DWR) reservoirs in which the Metropolitan Water District (WD) controls a portion of the storage: Perris and Castaic;
- Metropolitan WD facilities: Diamond Valley Lake, Lake Mathews, and groundwater basins;
- Santa Clara Valley WD facility: Anderson Reservoir;
- Other non-CVP/SWP facilities where the local water agency participates in EWA (e.g., Kern Water Bank);

- Agricultural lands in the Sacramento Valley (Butte, Colusa, Glenn, Placer, Sutter, and Yolo Counties) and the San Joaquin Valley (Kings, Fresno, Kern, Tulare Counties) in which farmers participate in crop idling; and
- Groundwater basins that participate in acquisition of EWA water via groundwater substitution, stored groundwater purchase, or groundwater storage.

Regulating and other reservoirs downstream from reservoirs where EWA assets may be acquired or stored are dismissed in the effects assessment because these reservoirs are normally operated to receive variable flows, and EWA actions will not affect operations of those downstream reservoirs. Increases in reservoir inflow would not affect the regulator reservoir storage levels because increased releases would match the increased inflow.

Because one of goals of the EWA program is to improve water supply reliability in the Export Service Area, there is a potential for indirect growth, economic effects (from more stable crop production or crop idling), or indirect groundwater effects (from groundwater substitution). However, EWA is a dynamic program with the potential for effects varying from one locality to another each year. Therefore there is difficulty in anticipating where these effects may occur; thus, the program study area only includes those areas delineated above. The respective analytical chapters of this document describe any differences between this overall EWA area of analysis described above and the area of analysis for a particular resource area (e.g., each discipline has a different area of analysis, as described in Chapters 4 to 21).

The effects analysis requires the differentiation of EWA action into three regions because of the importance of the Sacramento-San Joaquin Delta (Delta region) as a conveyance system for the transfer of water from "Upstream from the Delta" to SWP and CVP contractors downstream from the Delta pumps (Export Service Area). EWA water transfers originating Upstream from the Delta would require moving water through the Delta. Constraints to transferring water through the Delta range from physical limitations to regulatory requirements. Careful coordination of EWA transfers with existing SWP and CVP operations in meeting water rights, water quality, and fishery protection measures would be necessary when the EWA acquisitions are transferred through the Delta.

3.2.1 Upstream from the Delta Region

The Upstream from the Delta Region includes the Sacramento Valley, the Sacramento River, and its tributary rivers: Feather River, Yuba River, and American River. Because the San Joaquin River also flows into the Delta upstream from the Delta pumps, the portions of the San Joaquin Valley that are drained by the San Joaquin River are also considered to be "upstream" from the Delta. The Merced River, a San Joaquin River tributary, is also part of the Upstream from the Delta region.

3.2.1.1 Sacramento River Area

The Sacramento River area is bounded by the ridgetops of the Sacramento River watershed (hydrologic region). The Sacramento, American, Feather, and Yuba Rivers have been identified as potential sources of EWA acquisitions. The Feather and American Rivers are major tributaries to the Sacramento River; the Yuba River is a major tributary to the Feather River (see Figure 3-2).

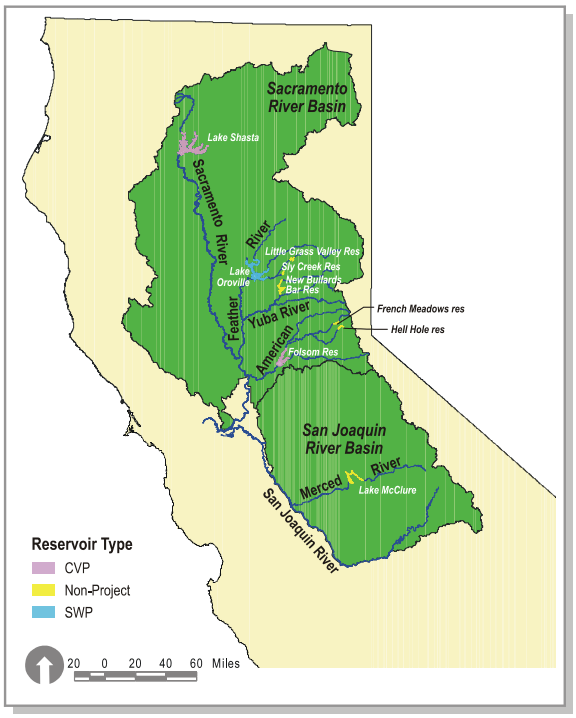

Figure 3-2
Upstream from the Delta Region

3.2.1.2 San Joaquin River Area

The major rivers of the San Joaquin River watershed are the Stanislaus, Tuolumne, Merced, and San Joaquin. The Merced River is a potential source of EWA acquisitions. The San Joaquin Valley is separated into two hydrologic basins: in the north, the San Joaquin Sub-basin, which drains to the Delta; and the Tulare Sub-basin to the south. The Tulare Sub-basin is in the Export Service Area region because the Tulare Sub-basin drains to the Delta only when rare floodflows carry its water north into the San Joaquin Sub-basin.

3.2.2 Sacramento/San Joaquin Delta Region (Delta Region)

The Delta Region is separate from the Sacramento River and San Joaquin River watersheds because of its legal status and its use as a conveyance system for upstream acquisitions. As the location of the SWP and CVP pumping plants, the San Francisco Bay/Sacramento-San Joaquin Delta is the site of conflicts regarding the take of endangered or threatened fish species. In addition, the Delta lies at the confluence of the Sacramento and San Joaquin Rivers and serves as the major hub for the operations of the SWP and CVP. The Delta's use as a conveyance system by the SWP and CVP highlights its importance to the EWA program. The SWP operates its Harvey O. Banks Pumping Plant in the southern Delta to lift water into the California Aqueduct for delivery to SWP customers in the south San Francisco Bay Area, San Luis Obispo and Santa Barbara Counties, the San Joaquin Valley, and southern California. The CVP operates the Tracy Pumping Plant to lift water from the Southern Delta into the Delta-Mendota Canal to service CVP contractors in the San Joaquin Valley and the Tulare Basin (see Figure 3-3).

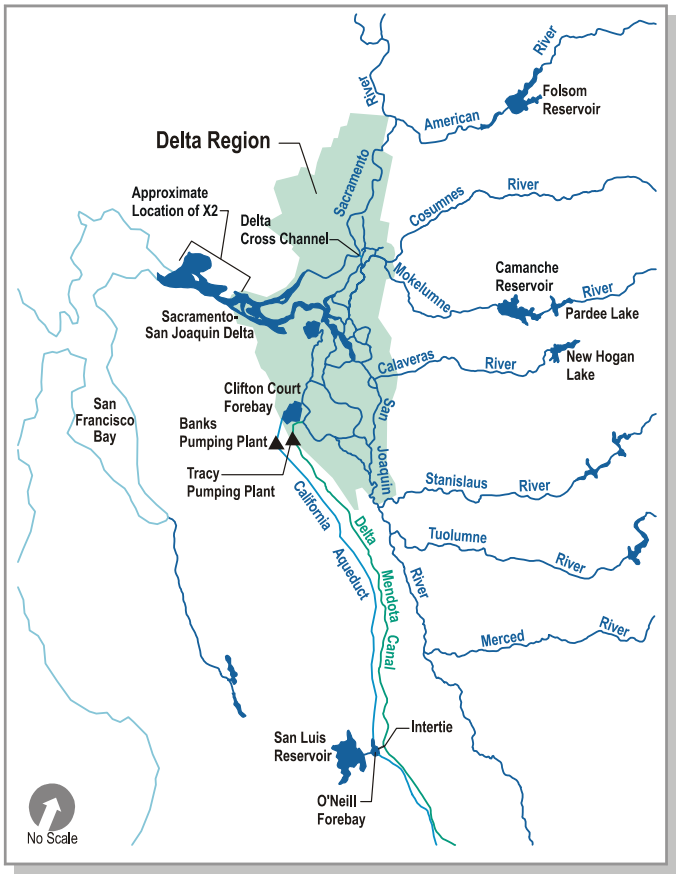

Figure 3-3
Delta Region Facilities

A series of regulations and agreements with the State Water Resources Control Board (SWRCB), U.S. Fish and Wildlife Service (USFWS), National Marine Fisheries Service (NOAA Fisheries), California Department of Fish and Game (CDFG), and U.S. Army Corps of Engineers (USACE) govern current SWP and CVP operations in the Delta. These regulations and agreements limit the volume of water that can be exported from the Delta based on Delta hydrodynamics, water quality, and potential impacts on fisheries as determined by (1) fish abundance at the pumps, as indicated by screening operations; (2) a real-time monitoring program implemented by the Interagency Ecological Program throughout the Bay-Delta; and, (3) fish monitoring conducted on tributaries upstream from the Delta.

3.2.3 Export Service Area

The Export Service Area is defined as the area that receives, stores and uses CVP and SWP water pumped from the Delta. It includes the San Joaquin Valley and CVP/SWP customers in the Bay Area, south central California Coast, and southern California.

3.2.3.1 San Joaquin Valley

EWA asset acquisition and management actions would affect areas of Fresno, Kern, Kings, and Tulare Counties in the southern San Joaquin Valley (Figure 3-4). This area receives water from multiple sources, including the SWP, the CVP, local surface water sources (Kings, Kaweah, Tule, and Kern Rivers), and groundwater. EWA actions in this area include crop idling, stored groundwater purchases, and groundwater storage.

3.2.3.2 Export Service Area Reservoirs

The California Aqueduct delivers imported water to the Metropolitan WD service area from northern California sources to storage reservoirs such as Pyramid Lake, Castaic Lake, Silverwood Lake, and Lake Perris. Other Metropolitan WD water

supplies include the Colorado River Aqueduct, local groundwater supplies, Metropolitan WD storage reservoirs (e.g., Diamond Valley), and reclaimed water. Metropolitan WD's SWP allocation is 2.01 million acre-feet of water per year.

Castaic Lake, Lake Perris, Lake Mathews, and Diamond Valley Reservoir are four facilities in southern California that would potentially be used for EWA asset management. The Castaic Dam and reservoir facility is about 45 miles northwest of Los Angeles. Castaic Lake is the terminus for the west branch of the California Aqueduct. Lake Perris is about 11 miles southeast of Riverside and 60 miles southeast of downtown Los Angeles. The lake is the southern terminus of the SWP's East Branch of the California Aqueduct.

Figure 3-4
Export Service Area

Diamond Valley Reservoir, recently completed by the Metropolitan WD, is 80 miles southwest of Los Angeles. This reservoir receives water distributed through Metropolitan WD's water distribution system, which includes all Metropolitan WD's water sources.

Anderson Reservoir, in Santa Clara County, is another facility that would potentially be used for EWA asset management. Santa Clara Valley WD uses Anderson Reservoir for groundwater recharge and as a secondary drinking source. The reservoir is the largest lake in the county.

3.2.4 CVP/SWP Project Facilities

CVP/SWP Project facilities that are potentially affected by EWA acquisitions include San Luis Reservoir from which the EWA could borrow water or use for storage; SWP and CVP storage reservoirs (Lake Shasta, Lake Oroville, and Folsom Lake), which may be used for EWA asset storage; and SWP and CVP pumping and conveyance facilities, which would be used for transporting EWA acquisitions. The facilities are identified on Figures 3-2, 3-3, and 3-4.

3.2.4.1 San Luis Reservoir

San Luis Reservoir is an offstream storage reservoir within the Export Service Area jointly operated by the CVP and SWP. It is near Los Banos, has a capacity of 2,041,000 acre-feet, and stores exports from the Delta to be used when the water is needed in the Export Service Area. Both the CVP and SWP systems use San Luis Reservoir to increase water allocations. San Luis Reservoir water supplements other CVP or SWP water during periods of constrained operations in the Delta and when demands exceed maximum capacity at the pumping plants.

3.2.4.2 Other State Water Project Facilities

The SWP is the largest State-built, multipurpose water project in the country. DWR operates the SWP to export Delta flows and store and transfer water from the Feather River basin to the San Joaquin Valley, the South Bay, North (of Suisun) Bay, coastal counties, and ultimately to southern California. The State legislature authorized the SWP in 1951 for water supply, flood control, hydropower generation, recreation, and fish and wildlife purposes. About 22 million of California's estimated 33 million residents benefit from SWP water, which irrigates about 600,000 acres of farmland, mainly in the south San Joaquin Valley.

SWP facilities include 28 dams and reservoirs, 26 pumping and generating plants, and approximately 660 miles of aqueducts. In the southern Delta, the SWP diverts water from Clifton Court Forebay for delivery south of the Delta. Banks Pumping Plant lifts water from the Clifton Court Forebay into Bethany Reservoir. The water delivered to Bethany Reservoir flows into the California Aqueduct, the main conveyance facility of the SWP. The balance of the water is pumped from Bethany Reservoir into the South Bay Aqueduct for delivery to urban contractors in the South Bay Area. Along the western San Joaquin Valley, the California Aqueduct transports water through the Gianelli Pumping-Generating Plant for storage in San Luis Reservoir until it is needed for later use. The 444-mile-long California Aqueduct conveys water to the primarily agricultural lands of the San Joaquin Valley and the mainly urban regions of Southern California. The west branch of the aqueduct ends in Castaic Lake, and the east branch terminates at Lake Perris.

3.2.4.3 Other Central Valley Project Facilities

The CVP is a multipurpose project operated by Reclamation to store and transfer water from the Sacramento, San Joaquin, and Trinity River Basins to the Sacramento and San Joaquin Valleys. Congress authorized the CVP in 1935. The authorized purposes of the CVP are navigation, flood control, water supply, fish and wildlife, hydropower generation, recreation, and other beneficial uses. The CVP service area extends about 430 miles through much of California's Central Valley, from Trinity and Shasta Reservoirs in the north to Bakersfield in the south. About 15 percent of CVP water goes to municipal and industrial uses, providing water to approximately 2 million urban residences in Contra Costa, Santa Clara, and Sacramento Counties.

The remaining CVP water irrigates 3 million acres of land in the Sacramento and San Joaquin Valleys.

The Delta-Mendota Canal is the main conveyance facility of the CVP. It conveys water from the Tracy Pumping Plant in the southern Delta to agricultural lands in the San Joaquin Valley. Water not delivered directly is diverted from the Delta Mendota Canal at O'Neill Pumping Plant into O'Neill Forebay. The water then flows along the San Luis Canal to CVP contractors in the San Joaquin Valley or is lifted into San Luis Reservoir through Gianelli Pumping/Generating Plant for later use. The majority of the rest of the water continues to the southern Central Valley, with some water being diverted to Santa Clara County.

3.2.5 Comparison of EWA Program Area Boundaries and CALFED PEIS Boundaries

The EWA study area boundaries are very similar to the CALFED Programmatic Environmental Impact Statement/Environmental Impact Report (CALFED PEIS/EIR) boundaries (see Figure 3-5). With the exception noted below, the boundaries of the Delta Region and Export Service Area coincide with those of the "Delta Region" and "Other CVP and SWP Service Areas," respectively, in the PEIS. For the Delta Region, the analyses in this document end at Suisun Bay. The boundaries of the Sacramento River Basin coincide with the "Sacramento River Region" of the CALFED PEIS/EIR. The major differences are the exclusion of the Bay Region from the study area, and the grouping of all watersheds that drain into the Delta (the Sacramento River Basin and the San Joaquin River Basin) into one region, Upstream from the Delta. This required separating the San Joaquin Region sub-basins as presented in the CALFED PEIS/EIR. As noted previously, the northern part of San Joaquin Valley that flows into the Delta, is part of the Upstream from the Delta Region while the southern part of San Joaquin Valley is in the Export Service Area.

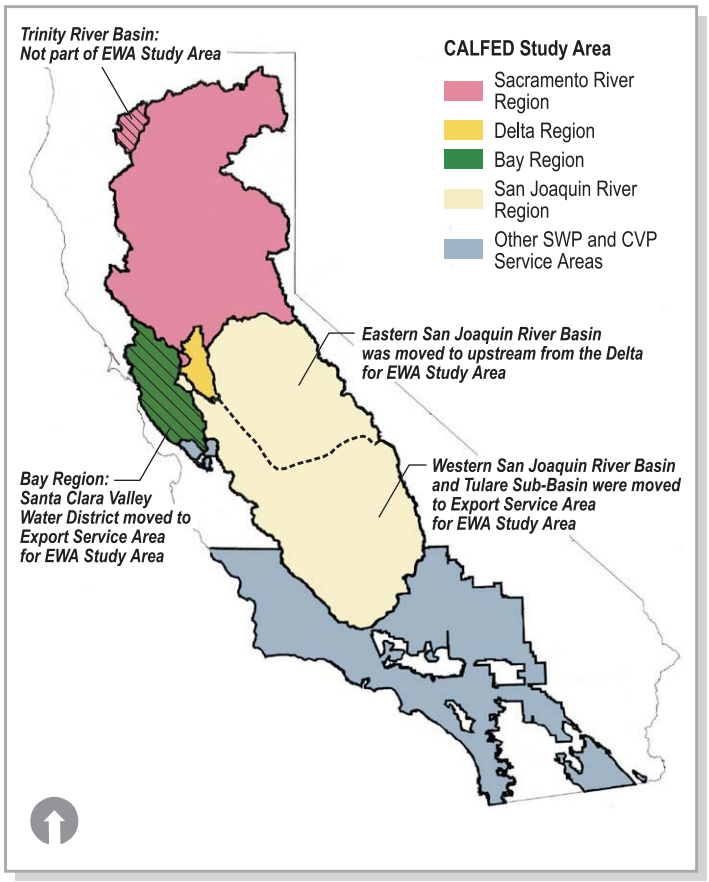

Figure 3-5
EWA and CALFED Program Area Boundaries

Also as noted previously, each

resource area has a different area of analysis depending on the type of EWA asset acquisition or management action. The reader is referred to each resource area chapter for the definitions of the boundaries for each resource area.

3.3 Framework for Environmental Consequences/ Environmental Impacts Analysis

This Report presents pertinent information for assessing the alternatives' potential adverse impacts on the environment, in accordance with National Environmental Policy Act (NEPA) and California Environmental Quality Act (CEQA) requirements. The document includes 17 analytical chapters, each for a specific resource: water supply, water quality, groundwater resources, geology and soils, air quality, fisheries and aquatic ecosystems, vegetation and wildlife, regional and agricultural economics, agricultural social issues, agricultural land use, recreation, flood control, power production, cultural resources, visual resources, environmental justice, and Indian Trust Assets. Chapters 4 through 22 contain all the required CEQA/NEPA components, including:

- The Affected Environment/Existing Conditions presented by the three EWA study area regions, including a detailed presentation of existing environmental conditions within the areas of analysis for each of the resource areas.
- Environmental Consequences/Environmental Impacts, including assessment methods, significance criteria, and qualitative and quantitative descriptions of potential impacts on the physical, biological, and social environments by alternative.
    - No Action/No Project Alternative
    - Flexible Purchase Alternative
    - Fixed Purchase Alternative
- Comparative Analysis of Alternatives
- Mitigation Measures (for resources with potentially significant impacts)
- Cumulative Effects (Chapter 22)

In general, the effects analysis evaluated only those asset acquisition and management actions that were included in the project description for that alternative. In other words, only the purchase of specific amounts of water known to be available from particular water agencies was evaluated in the environmental consequences chapters. It is possible that water from other willing sellers will become available in the future. If other water becomes available, it would likely be pursued by the Project Agencies for EWA needs. However, purchases in amounts or from locations outside the scope

of this EIS/EIR would require additional NEPA and CEQA analysis. Many of the environmental resources, such as groundwater, agricultural resources, and cultural resources require site-specific information to complete a full impact analysis.

It is not possible to accurately predict the amount of water needed for EWA actions each year, or know the names and locations of willing sellers with available water each year. The EWA program does not allow for a definitive list of all EWA acquisitions that may occur. The quantities of water available each year depend on the weather and resulting water supply conditions. The alternatives in Chapter 2 describe likely quantities of water that may be available from specific water agencies. The quantities of water listed in Table 2-5 represent the largest range of possible purchases that could be made available by these willing sellers.

The effects analysis of some resources, namely fisheries and water quality in the Delta, does not depend on the location of the particular water seller, but on the total amount of EWA water to be transferred via a particular tributary and receiving water body. Fisheries and water quality effects, therefore, were evaluated based on the largest amount of water that EWA agencies could manage in the Delta for fish actions (approximately 600,000 acre-feet, per the analyses in this EIS/EIR), regardless of whether the specific water sellers could be identified at this time. Therefore, the effects analysis represents a "worst-case scenario" based on the maximum amount of water that may be purchased by the EWA agencies.

Another caveat to the above approach relates to the selection of possible EWA water acquisitions described in the Chapter 2. Some of the water acquisitions were included in the EWA program description not only because of the EWA agencies' awareness of them, but also because the acquisitions are in the same geographic area of other potential unidentified acquisitions. For example, additional acquisitions not identified in Chapter 2 (Table 2-5) are expected to be available for the EWA from agencies drawing water from the Sacramento and Feather Rivers. The EWA agencies anticipate that the site-specific effects analysis included in this EIS/EIR also will provide analysis for the effects of other water acquisitions from neighboring agencies along these tributaries with similar physical conditions (e.g., groundwater conditions, crop types). To the extent that the effects analyses included in this EIS/EIR do not adequately cover potential, unidentified EWA asset acquisitions, this document instead provides a programmatic level of analysis for these future EWA acquisitions.

3.4 Basis of Comparison

This document is a environmental impact statement addressed to NEPA requirements and an environmental impact report developed to address CEQA requirements. NEPA and CEQA use different terms for similar definitions. Important NEPA and CEQA terms are presented in Table 3-1. The text that follows describes the differences between NEPA and CEQA in formulating the basis of comparison for the determination of project-related effects.

Table 3-1
Important NEPA and CEQA Terms

NEPA	CEQA
Cooperating agency	Responsible agency
Proposed Action	Proposed Project
No-action alternative	No-project alternative
Environmentally preferred alternative	Environmentally superior alternative
Purpose and need	Project objectives
Affected environment	Environmental setting
Environmental Consequences	Environmental Impacts
Environmental Impact Statement (EIS)	Environmental Impact Report (EIR)
Notice of Intent (NOI)	Notice of Preparation (NOP)
Notice of Availability (NOA)	Notice of Completion (NOC)
Record of Decision (ROD)	Notice of Determination (NOD)/Findings

Under CEQA Guidelines, the basis of comparison, the benchmark from which to compare the "Proposed Project" with the condition of no project, is called the "Environmental Setting," usually defined as the physical environmental conditions in the vicinity of a project that exist at the time of the filing of the Notice of Preparation (NOP). DWR filed an amended NOP on May 28, 2002 (Appendix F). The Affected Environment/Environmental Setting sections in this EIS/EIR describe existing conditions of the human, physical, and natural environments. These conditions vary for each resource evaluated in the EIS/EIR. In addition, there are regional differences in the settings for specific resources. For example, for agricultural economics, there are current trends that predict a different setting for the future. For Placer County, the current trend is the conversion of farmland for residential uses indicating less agricultural land use. For the Westlands area, legislated cropland retirement programs could mean less agricultural land for Fresno and Kings Counties. While for other counties, such as Colusa and Butte, no significant change in agricultural land use is anticipated, making existing and future conditions similar.

CEQA and NEPA guidelines also require a lead agency to evaluate a "No Project/No Action" alternative that describes future conditions without the project. For the purpose of analyzing water-related resource areas and impacts of the EWA action alternatives, the operation of the CVP/SWP under existing operational rules (Environmental Setting) was determined to be the same as the operating rules under the No Project/No Action Alternative. No CVP or SWP operational changes are expected during the 2004-2007 timeframe being analyzed in this EIS/EIR. The basis for comparison for water-related resources and impacts in this EIS/EIR is therefore termed the Environmental Setting/No Project condition. Because there is a potential for changes in the physical environmental setting in the near future, the assessment of some non-water-related resource areas (e.g., wildlife and land use) is based on two considerations: the "Environmental Setting" and the "No Project" condition. Therefore, for some resources, the effects of the EWA action alternatives are calculated relative to both the existing "Environmental Setting" and the expected "No Project" condition.

Under NEPA, the basis for determining effects is termed the "No Action" Alternative, defined as the Future Conditions Without the Project. The "Future Conditions" are the same as for the CEQA "No Project" Alternative and the NEPA "No Action" Alternative allowing for compliance with both acts. There are actions currently taking place for some of the resources that are causing changes from that described for the present conditions. Each resource section describes those actions and the expected changes. These likely immediate future conditions were considered in the description of the No Project/No Action conditions.

3.5 Resources Evaluated and Not Evaluated

Through the Environmental Water Account Team (EWAT), the Management and Project Agencies participated in the identification of the potentially significant environmental issues that are analyzed in depth in this EIS/EIR. The EWAT discussions lead to the determination of which resources are to be addressed in detail in this document.

EWA alternatives do not include new construction of water facilities, infrastructure, or any other type of construction or change in land disturbance. EWA agencies would use existing groundwater extraction and reservoir and riverflow control facilities. This EIS/EIR does not evaluate construction impacts.

The EWA program has a 4-year timeframe that would only create short-term water supply reliability. Therefore, this analysis does not assume any development, growth or additional demands on public services; increases in traffic congestion; reductions in the level of service standards; or increased safety risks.

EWA actions do not involve construction; therefore there would not be any construction-related noise impacts. Crop idling would decrease the amount of farming activities, thereby decreasing noise associated with activities generally present in agricultural areas. No increases in noise levels are anticipated; therefore, noise was not evaluated.

EWA alternatives do not involve construction or disturbances within water bodies that would result in fill or discharge of pollutants or contribute to conditions that might cause mudflows or other water-related hazards. EWA alternatives would not create hazards or hazardous conditions. The proposed EWA alternatives, therefore, would not have an impact on hazards and hazardous materials, mineral resources, noise, transportation/traffic, or utilities and service systems, and these resources were not included in this document.

EWA actions are expected to change the flow regimes and storage patterns in rivers, creeks and other channels contained by levees. Typically, water would be released from reservoirs during the mid- to late-summer and fall, when rivers and channels are substantially below flood stage capacity (typically less than 25 percent of spring runoff flows). Releases of EWA assets would not exceed typical releases from the reservoirs. Therefore, geomorphological effects to riverbanks and levee systems due to EWA releases were not calculated, and this EIS/EIR does not include additional

analysis of geomorphology. Because several of the reservoirs used to store EWA assets do have a flood control function, EWA asset storage effects on reservoir flood control capability were analyzed in this EIS/EIR.

Resources that have the potential to be affected by the EWA action alternatives include water supply, water quality, groundwater, geology, soils and seismicity, air quality, fisheries and aquatic ecosystems, vegetation and wildlife, agricultural economics, agricultural social issues, agricultural land use, recreation (including hunting and fishing), flood control, power, cultural resources, visual resources, environmental justice, and Indian Trust Assets. Chapters 4 through 22 evaluate these resources.

3.6 Related Actions

The scope of an EIS/EIR consists of the full range of EWA actions, alternatives, and impacts (40 CFR 1508.25). No connected actions have been identified for this EIS/EIR. Actions are connected if (1) they automatically trigger other actions which may require environmental impact statements; (2) they cannot or will not proceed unless other actions are taken previously or simultaneously; (3) are interdependent parts of a larger action and depend on the larger action for their justification. No similar actions have been identified for EWA. Similar actions are those which, when viewed with other reasonably foreseeable or proposed agency action, have similarities that provide a basis for evaluating their environmental consequences together.

Cumulative actions have been identified for the EWA. NEPA defines "cumulative impact" as the impact that results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time. Cumulative actions are those, which when viewed with the proposed EWA action, have cumulatively significant impacts and should therefore be discussed in the same impact statement. These cumulative actions, which include other water acquisition programs and other actions/programs creating similar impacts (e.g., legislated crop retirement), are described in Chapter 22, Cumulative Analysis Framework; the effects of these actions combined with the effects of the EWA are evaluated by individual resource in Chapters 4 through 20.

3.7 Environmental Documents Incorporated by Reference

This document tiers from the CALFED PEIS/EIR (July 2000) and the Record of Decision (CALFED ROD) issued August 2000, pursuant to CEQA Guidelines Section 15152 and NEPA CEQ guidelines in Section 1508.28 (Tiering). As discussed in Chapter 1 (Section 1.5.1), the CALFED PEIS/EIR is incorporated by reference into this document for the purpose of providing background information about the CALFED Plan and context for this EWA EIS/EIR:

- CALFED Final PEIS/EIR, main text Chapters 1, 2, and 4
- CALFED Final PEIS/EIR, Responses to Comments Volume 1, Common Responses 1, 5, and 21
- CALFED Final PEIS/EIR Technical Appendices (Phase II Report, Implementation Plan, Water Transfer Program Plan, and Multi-Species Conservation Strategy

Primary CALFED PEIS/EIR documents and supporting technical reports that were used to provide additional factual information include:

- Multi-Species Conservation Strategy, Technical Appendix (species lists, species accounts, and habitat types)
- CALFED Technical Report, Affected Environment, Vegetation and Wildlife. CALFED Bay-Delta Program, March 1998 (for vegetation and wildlife resource analysis).
- CALFED Technical Report, Affected Environment, Fisheries and Aquatic Resources. The CALFED Bay-Delta Program, March 1998 (for fisheries and aquatic resources analysis).
- CALFED Programmatic Record of Decision, Volume 1, August 28, 2000
    - Attachment 1 – California Environmental Quality Act Requirements
    - Attachment 2 – Environmental Water Account Operating Principles Agreement
    - Attachment 3 – Implementation Memorandum of Understanding
    - Attachment 4 – Clean Water Act Section 404 Memorandum of Understanding
- CALFED Programmatic Record of Decision, Volume 2, August 28, 2000
    - Attachment 5 – Conservation Agreement Regarding Multi-Species Conservation Strategy
    - Attachment 6 – Programmatic Endangered Species Act Section 7 Biological Opinions
- CALFED Programmatic Record of Decision, Volume 3, August 28, 2000
    - Attachment 7 – Natural Community Conservation Plan Determination
    - Attachment 8 – Clean Water Act Section 401 Memorandum of Understanding
    - Attachment 9 – Coastal Zone Management Act Programmatic Consistency Determination

- Attachment 10 – Common Acronyms

This EIS/EIR makes use of existing environmental documents prepared by DWR for acquisition of water assets under other programs from several water districts and agencies. In this regard, the following environmental documents are incorporated by reference:

- Acquisition of Water from the Western Canal Water District for Use in the 2001 Dry Year Water Purchase Program. The California Department of Water Resources, May 2001.
- Arvin-Edison Water Management Project Negative Declaration, May 1996 (expansion of groundwater bank).
- Final EIR for the Semitropic Groundwater Banking Project, July 1994 (construction and operation of groundwater bank).
- Kern Water Bank EIR, 1986 (operation of groundwater bank).
- Arvin-Edison Water Management Project Negative Declaration, May 1996 (contract between Arvin-Edison and the Metropolitan Water District (WD) to allow Metropolitan WD to make use of the additional storage in Arvin-Edison's groundwater basin).
- Semitropic Groundwater Banking Project Environmental Impact Report, July 1994 (construction and operation of groundwater bank).

3.8 Irreversible and Irretrievable Commitments of Resources

NEPA Section 102(C)(v) (CEQ Regulations Part 1502.16) requires Federal agencies to consider to the fullest extent possible any irreversible and irretrievable commitments of resources which would be involved in the proposed action should it be implemented. CEQA Guidelines Section 15126.2(c) echo this same intention. Nonrenewable resources committed during project initiation may be irreversible, since commitments of such resources may permanently remove resources from further use. CEQA requires evaluation of irretrievable resources to assure that consumption is justified. For example, cultural resources are nonrenewable; any destruction or loss is irreplaceable.

The EWA program is a water acquisition and management strategy that does not involve construction or the use of resources except water, with one exception. That exception is the use of fuel that is required to power generators for the extraction of groundwater. The acquisition strategies, thresholds, and avoidance actions incorporated into the design of the EWA program prevent the irreversible and irretrievable commitment of other nonrenewable resources. There is no other

commitment of nonrenewable resources, and the EWA Program does not commit future generations to permanent use of natural resources.

3.9 Relationship Between Short-Term Uses of the Environment and Maintenance and Enhancement of Long-Term Productivity

NEPA Section 102(C)(iv) (CEQ Regulations 1502.16) requires all Federal agencies to disclose the relationship between local short-term uses of man's environment and the maintenance and enhancement of long-term productivity. All EWA water acquisition and management processes in this EIS/EIR are temporary, and would not directly lead to long-term benefits to the sustainability and reliability of California's water supply, fish, and fish habitat. Therefore, this discussion will focus on the tradeoffs between short-term environmental and human health costs and long-term environmental benefits if EWA were to be continued beyond 2007.

Water acquisition through crop idling is a short-term acquisition option that could result in both long- and short-term effects. Crop idling under certain circumstances could produce windborne dust that could result in human health effects and a permanent loss of soil due to wind erosion. Crop idling under EWA water acquisitions would include mitigation measures to prevent these adverse effects. The temporary idling of productive farmland would also result in increased localized farm labor unemployment. Long-term productivity related to water supply reliability issues would be dependent on continuation of the EWA beyond the stage 1 period of CALFED. EWA actions could lead to improvements that address California's surface and groundwater supplies, water quality, fish protection and recovery and sustain agricultural economics and social issues if decisions were made to continue the EWA program indefinitely.

This EIS/EIR only analyzes EWA actions through the Stage 1 phase of CALFED (the year 2007). The EWA program would not provide for protection of the long-term productivity of urban and rural populations by increasing their water supply reliability unless it was continued beyond 2007. Through a continued EWA, farmers could sustain food production in the Central Valley through use of reliable sources of surface water instead of turning to over drafted groundwater basins during times when the surface water supply is interrupted. Enhanced management of groundwater would also ensure its long-term sustainability.